

**FACT SHEET**

as required by LAC 33:IX.3111 for major LPDES facilities, for draft Louisiana Pollutant Discharge Elimination System Permit No. LA0086576; AI 24837; PER20090002 to discharge to waters of the State of Louisiana as per LAC 33:IX.2311.

The permitting authority for the Louisiana Pollutant Discharge Elimination System (LPDES) is:

Louisiana Department of Environmental Quality  
Office of Environmental Services  
P. O. Box 4313  
Baton Rouge, Louisiana 70821-4313

- I. **THE APPLICANT IS:** City of Tallulah  
Wastewater Treatment Plant  
204 North Cedar Street  
Tallulah, Louisiana 71282
- II. **PREPARED BY:** Ronnie Bean
- DATE PREPARED:** March 22, 2010
- III. **PERMIT ACTION:** reissue LPDES permit LA0086576, AI 24837; PER20090002
- LPDES application received: July 20, 2009
- EPA has not retained enforcement authority.
- Previous LPDES permit effective: February 1, 2005  
Previous LPDES permit expires: January 31, 2010

IV. **FACILITY INFORMATION:**

- A. The application is for the discharge of treated sanitary wastewater from a publicly owned treatment works serving the City of Tallulah.
- B. The permit application does not indicate the receipt of industrial wastewater.
- C. The facility is located on Old Highway 65 near the intersection with I-20 in Tallulah, Madison Parish.
- D. The treatment facility consists of an aerated lagoon followed by application onto a 266 acre overland flow system. The wastewater is then chlorinated and dechlorinated before discharge.
- E. Outfall 001 and 002\*
- Discharge Location: Latitude 32° 24' 19" North  
Longitude 91° 14' 5" West
- Description: treated sanitary wastewater
- Design Capacity: 2.63 MGD

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Type of Flow Measurement which the facility is currently using:

## Continuous Recorder Flow Meter

- Outfall 001 and 002 are the same outfall; however, the outfall number identification is dependent on the situation. During normal conditions, the discharge will be identified as Outfall 001. When treated effluent is being pumped onto the application field during inclement weather events, as defined later in this fact sheet, the discharge will be identified as Outfall 002.

In the previous permit, there were effluent limitations for Outfall 003, which was for the discharge of storm water only from the outfall. This outfall is being removed from this permit. The development and implementation of a Storm Water Pollution Prevention Plan adequately addresses storm water discharges and is consistent with the requirements found in the LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities.

#### V. RECEIVING WATERS:

The discharge is into Panola Bayou; thence into Roundaway Bayou; thence into Mothiglam Bayou; thence into Alligator Bayou in Subsegment 081201 of the Ouachita River Basin, defined at LAC 33:IX.1123. Table 3 as *Tensas River from headwaters to Jonesville, including Tensas Bayou*. Subsegment 081201 is not listed on the 303(d) list of impaired waterbodies.

The critical low flow (7Q10) of Panola Bayou is 0.1 cfs.

The hardness value is 184 mg/l and the fifteenth percentile value for TSS is 41.8 mg/l.

The designated uses and degree of support for Subsegment 081201 of the Ouachita River Basin are as indicated in the table below<sup>1/</sup>:

Degree of Support of Each Use						
Primary Contact Recreation	Secondary Contact Recreation	Propagation of Fish & Wildlife	Outstanding Natural Resource Water	Drinking Water Supply	Shell fish Propagation	Agriculture
Full	Full	Not Supported	N/A	N/A	N/A	N/A

<sup>1/</sup> The designated uses and degree of support for Subsegment 081201 of the Ouachita River Basin are as indicated in LAC 33:IX.1123.C.3, Table (3) and the 2006 Water Quality Management Plan, Water Quality Inventory Integrated Report, Appendix A, respectively.

#### VI. ENDANGERED SPECIES:

The receiving waterbody, Subsegment 081201 of the Ouachita River Basin, is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U. S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated January 5, 2010, from Rieck (FWS) to Nolan (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. The

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effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat. It was determined that the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat.

**VII. HISTORIC SITES:**

The discharge is from an existing facility location, which does not include an expansion beyond the existing perimeter. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the 'Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits' no consultation with the Louisiana State Historic Preservation Officer is required.

**VIII. PUBLIC NOTICE:**

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit modification and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the statement of basis. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

For additional information, contact:

Mr. Todd Franklin  
Permits Division  
Department of Environmental Quality  
Office of Environmental Services  
P. O. Box 4313  
Baton Rouge, Louisiana 70821-4313

**IX. PROPOSED PERMIT LIMITS:**

**PRE-APPLICATION TREATMENT**

The permittee utilizes an overland flow method for wastewater treatment. Overland flow systems are a method of land application and wastewater reuse capable of meeting advanced treatment levels. In this type of system, wastewater is applied at the top of a gently sloping terrain and allowed to flow over the surface of the ground to the bottom where it is collected, disinfected, and discharged. However, municipal wastewater often contains rags, paper, hair and other large articles that can bind and clog orifices and valves in surface and sprinkler distribution systems. Therefore, pre-application treatment is required to prevent operating problems with the distribution system and nuisance conditions such as odor during storage.

It is the intent of this Office to protect in-stream conditions during times of critical or low flow. As such, LAC 33:IX.2311.A.1 requires permits for the discharge of pollutants from any point source into

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waters of the state. Since the application field is not included as waters of the state, effluent limitations and monitoring requirements will not be required for discharge to the application field. However, since the permittee utilizes a pond system for pretreatment, every attempt should be made to meet limitations equivalent to secondary treatment as established by LAC 33:IX.5905.A and B and LAC 33:IX.711.D.2.

#### **POST-APPLICATION EFFLUENT LIMITATIONS**

Overland flow systems provide advanced tertiary treatment to secondary treated wastewater. The wastewater is treated in the saturated top layer of the soil and by bacteria and algae attached to the vegetation. Wastewater is treated as it passes through the soil by filtration, adsorption, ion exchange, precipitation, microbial action, and plant uptake. In addition, microbes attached to the vegetation to extract nutrients. Overland flow systems provide significant reductions in BOD and TSS. Nitrogen is removed through nitrification/denitrification and crop uptake. Phosphorus removal is limited due to the minimum amount of percolation, but is held in the soil and serves to enrich the soil. Some wastewater is lost through evaporation and transpiration. Very little wastewater is passed onto the groundwater, due to the use of underlying impermeable soils. The remaining wastewater is collected at the bottom of the slope and discharged into nearby waters of the state. (*Process Design Manual for Land Treatment of Municipal Wastewater*, JSEPA, US Army Corps of Engineers, and US Department of Agriculture, 1977)

#### **TOTAL MAXIMUM DAILY LOADS (TMDLs)**

Subsegment 081201, of the Ouachita River Basin, is not listed on LDEQ's Final 2006 303(d) list as impaired. However, Subsegment 081201 was previously listed as impaired for pesticides (Carbofuran, DDT, and Toxaphene), organic enrichment / low DO, nutrients, phosphorus, suspended solids, and turbidity, for which the below TMDL's have been developed. The Department of Environmental Quality reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving water bodies based upon additional TMDLs and/or water quality studies. The DEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDLs for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as necessary to achieve compliance with water quality standards.

The following TMDL's have been established for Subsegment 081201:

##### ***Total Maximum Daily Load (TMDL) For Selected Pesticides in the Ouachita River Basin***

Page 81 of 194 from the Louisiana Water Quality Management Plan / Continuing Planning Process, Volume 8, "Wasteload Allocations / Total Maximum Daily Loads and Effluent Limitations Policy"

As per the TMDL, "There are no known point sources for Carbofuran, DDT, Methyl Parathion or Toxaphene in Big Creek, Boeuf River, Joe's Bayou, Macon Bayou or the Tensas River watershed; therefore, the WLA will be set to zero." In other words, the TMDL did not find any point sources which contributed to the pesticide impairment. Therefore, there will be no effluent requirements placed into the permit to address pesticides.

##### ***Tensas River TMDLs for Dissolved Oxygen and Nutrients***

Page 100 of 194 from the Louisiana Water Quality Management Plan / Continuing Planning Process, Volume 8, "Wasteload Allocations / Total Maximum Daily Loads and Effluent Limitations Policy"

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As per the TMDL:

In summary, the projection modeling used to develop the TMDLs above showed that NPS loads need to be reduced by approximately 93% to maintain the DO standard along the entire length of the Tensas River. The permit limits used for the City of Tallulah WWTP were 10 mg/L BOD5, 2 mg/L ammonia nitrogen, and 6 mg/L DO.

These above effluent limitations were placed in the previous LPDES permit and are proposed to remain in the reissued permit.

There are no specific numeric criteria for nutrients. However, there is a narrative standard that states "the naturally occurring range of nitrogen-phosphorus ratios shall be maintained." The TMDL states for following regarding the nutrient impairment:

LDEQ issued a declaratory ruling on April 29, 1996, concerning this language and stated, "That DO directly correlates with overall nutrient impact is a well-established biological and ecological principle. Thus, when the LDEQ maintains and protects DO, the LDEQ is in effect also limiting and controlling nutrient concentrations and impacts." DO serves as the indicator for the water quality criteria and for assessment of use support. For the TMDLs in this report, the nutrient loading required to maintain the DO standard is the nutrient TMDL.

The draft permit proposes to include quarterly monitoring and reporting for Total Nitrogen and Total Phosphorus for the life of the permit. This data will be collected and used for considerations on nutrients in future TMDLs and discharge permits for the City of Tallulah.

***Total Maximum Daily Load (TMDL) for TSS, Turbidity, and Siltation for 13 Subsegments in the Ouachita River Basin***

Page 102 of 194 from the Louisiana Water Quality Management Plan / Continuing Planning Process, Volume 8, "Wasteload Allocations / Total Maximum Daily Loads and Effluent Limitations Policy

As per the TMDL:

Point sources do not represent a significant source of TSS as defined in this TMDL. Wastewater treatment facilities discharge primarily organic TSS, which does not contribute to extensive habitat impairment resulting from sedimentation. The organic TSS is a nonconservative constituent that would only be detected as a component in proximity to the discharge point. Municipal permits contain a TSS limitation and a specific narrative requirement to prevent organic solids accumulation. Because an enforceable mechanism is in place to protect from discharges of organic suspended solids no TMDL is required for these materials.

Therefore, effluent limitations shall be in accordance with the Louisiana Water Quality Management Plan and consistent with limitations on other similar types of discharges.

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**OUTFALL 001 – treated sanitary wastewater only, applied to the application field during normal dry weather conditions.**

#### Interim Effluent Limitations

These interim effluent limitations shall become effective on the effective date of the permit and expire three years from the effective date of the permit.

Interim effluent limitations are proposed in the draft permit to allow the facility time to meet the newly imposed toxicity testing requirements into the permit renewal. Please see the Biomonitoring Section under the Final Effluent Limitations for details. Reporting without a WET limit will be required during the interim period.

Also, an interim period will be allowed in the permit to meet the newly imposed Hexachlorocyclohexane (gamma-BHC; lindane) permit limitation. During the interim period, reporting shall be required.

All other parameters in the Final Effluent Limitations below shall apply during the interim period.

Effluent Characteristic	Monthly Avg. (lbs./day)	Daily Maximum (lbs/day)	Basis
Hexachlorocyclohexane (gamma-BHC; lindane)	Report	Report	A priority pollutant scan indicated a need for a Water Quality Based Limit. Therefore, for monitoring and data information gathering purposes, "report" is proposed during this interim period.

#### Final Effluent Limitations

Final effluent limitations shall become effective three years from the effective date of the permit and expire on the expiration date of the permit.

Effluent Characteristic	Monthly Avg. (lbs./day)	Monthly Avg.	Weekly Avg.	Basis
Carbonaceous Biochemical Oxygen Demand (CBOD <sub>5</sub> )	219	10 mg/l	15 mg/l	Limits are set in accordance with the <i>Texas River TMDLs for Dissolved Oxygen and Nutrients</i> .
Total Suspended Solids (TSS)	329	15 mg/l	23 mg/l	Since there is no numeric water quality criterion for TSS, and in accordance with the current Water Quality Management Plan, the TSS effluent limitations shall be based on a case-by-case

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Effluent Characteristic	Monthly Avg. (lbs./day)	Monthly Avg.	Weekly Avg.	Basis
				evaluation of the treatment technology being utilized at a facility. Therefore, a Technology Based Limit has been established through Best Professional Judgement for the type of treatment technology utilized at this facility.
Ammonia – Nitrogen (NH <sub>3</sub> -N)	44	2 mg/l	4 mg/l	Limits are set in accordance with the <i>Tensas River TMDLs for Dissolved Oxygen and Nutrients</i> .
Dissolved Oxygen (DO)	---	6 mg/l	---	
Total Nitrogen	Report	Report (mg/l)	Report (mg/l)	For data collection for considerations of nutrients on future TMDLs and discharge permits for the City of Tallulah.
Total Phosphorus	Report	Report (mg/l)	Report (mg/l)	

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Effluent Characteristic	Monthly Avg. (lbs./day)	Daily Maximum (lbs./day)	Basis
Hexachlorocyclohexane (gamma-BHC; lindane)	0.0033	0.0078	Water Quality Based Limit. See Appendix A-1 for further details.

\* During the Draft Permit public comment period, the permittee may conduct and submit the results of three (3) or more additional effluent analyses to either refute or substantiate the presence of the Hexachlorocyclohexane (gamma-BHC; lindane). The additional analyses will be evaluated by this Office to determine if the pollutant is potentially in the effluent and if it potentially exceed the State's water quality standards.

## Other Effluent Limitations

## 1) Fecal Coliform

The discharge from this facility is into a water body which has a designated use of Primary Contact Recreation. According to LAC 33:IX.1113.C.5.a, the fecal coliform standards for this water body are 200/100 ml and 400/100 ml. Therefore, the limits of 200/100 ml (Monthly Average) and 400/100 ml (Weekly Average) are proposed as Fecal Coliform limits in the permit. These limits are being proposed through Best Professional Judgement in order to ensure that the water body standards are not exceeded, and due to the fact that existing facilities have demonstrated an ability to comply with these limitations using present available technology.

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## 2) pH

According to LAC 33:IX.3705.A.1., POTW's must treat to at least secondary levels. Therefore, in accordance with LAC 33:IX.5905.C, the pH shall not be less than 6.0 standard units nor greater than 9.0 standard units at any time.

## 3) Solids and Foam

There shall be no discharge of floating solids or visible foam in other than trace amounts in accordance with LAC 33:IX.1113.B.7.

## 4) Total Residual Chlorine

If chlorination is used to achieve the limitations for Fecal Coliform Bacteria, the effluent shall contain NO MEASURABLE Total Residual Chlorine (TRC) after disinfection and prior to disposal. Given the current constraints pertaining to chlorine analytical methods, NO MEASURABLE will be defined as less than 0.1 mg/l of chlorine. Limits set through BPJ in accordance with the previous LPDES permit and the Water Quality Screen (see Appendix A-1).

## 5) Biomonitoring

In accordance with EPA's Region 6 Post-Third Round Toxics Strategy, permits issued to treatment works treating domestic wastewater with a flow (design or expected) greater than or equal to 1 MGD shall require biomonitoring at some frequency for the life of the permit or where available data show reasonable potential to cause lethality, the permit shall require a whole effluent toxicity (WET) limit (*Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards*, September 27, 2001 VERSION 4).

Whole effluent biomonitoring is the most direct measure of potential toxicity which incorporates the effects of synergism of the effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity. LAC 33:IX.1121.B.3. provides for the use of biomonitoring to monitor the effluent for protection of State waters. The biomonitoring procedures stipulated as a condition of this permit are as follows:

The permittee shall submit the results of any biomonitoring testings performed in accordance with the LPDES Permit No. LA0086576, **Biomonitoring Section** for the organisms indicated below.

TOXICITY TESTSFREQUENCY

Chronic static renewal 7-day survival & reproduction test  
using Ceriodaphnia dubia (Method 1002.0)

1/quarter

Chronic static renewal 7-day survival & growth test  
using fathead minnow (Pimephales promelas) (Method 1000.0)

1/quarter

Dilution Series - The permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional concentrations shall be 31%, 41%, 55%, 73%, and 98%. The low-flow effluent concentration (critical low-flow dilution) and WET limit is defined as 98% effluent. The critical dilution is calculated in Appendix A-1 of this fact sheet. Results of all dilutions shall be documented in a full report according to the test method publication mentioned in the

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Biomonitoring Section under Whole Effluent Toxicity. This full report shall be submitted to the Office of Environmental Compliance as contained in the Reporting Paragraph located in the Biomonitoring Section of the permit.

This facility has experienced several lethal and sub-lethal biomonitoring test failures during the previous permit cycle. A reasonable potential analysis also shows that reasonable potential for future lethal and/or sub-lethal toxicity exists for the City of Tallulah WWTP. Therefore, a Whole Effluent Toxicity (WET) Limit is being proposed in the permit. The permit will allow a three year compliance schedule to attain compliance with the WET limit.

The permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body. Modification or revocation of the permit is subject to the provisions of LAC 33:IX.2383. Accelerated or intensified toxicity testing may be required in accordance with Section 308 of the Clean Water Act.

See attached Biomonitoring recommendation for more information.

**OUTFALL 002 – treated sanitary wastewater commingled on the application field with storm water during a rainfall event in excess of 0.36"**

**Storm water/Rainfall Runoff Conditions:**

It is the goal of this Office to protect water quality uses and uphold water quality standards, especially during times of critical or low flow. Periods of rainfall runoff may not be considered critical conditions. However, during periods of rainfall all of the pretreatment wastewater may not infiltrate, may runoff, may pond in low areas, may erode, and may be washed to surface waters without adequate advanced treatment. On the other hand, the effluent BOD<sub>5</sub> and TSS concentrations during rainfall events have been similar to dry weather conditions. However, the mass discharge of these constituents may increase proportionally to both the intensity and duration of the rainfall event. In other words, heavy rainfall events can theoretically cause a violation of mass discharge limits, even though the monthly average limit may not actually have been violated.

Stormwater discharges for the permittee's treatment system are highly variable in terms of flow and the relationship between discharges and water quality in general can be complex, not lending itself to the existing methodologies for deriving numeric water quality-based effluent limitations. Considering design capacity of the facility and the area of the application field, a measured rainfall event was derived that would approach the facility's design capacity without exceeding the design capacity. For the City of Tallulah WWTP inclement weather shall be defined by the following equation:

$$\begin{aligned}
 \text{Application field} &= 266 \text{ acres} \\
 1 \text{ acre} &= 43,560 \text{ ft}^2 \\
 \text{Area} &= 266 \text{ acres} \times 43,560 \text{ ft}^2/\text{acre} = 11,586,960 \text{ ft}^2 \\
 \text{Volume} &= \text{area} \times \text{depth} \\
 &= 11,586,960 \text{ ft}^2 \times 0.36"/12" \\
 \text{cubic feet/sec} &= \frac{\text{volume}}{24 \text{ hr/day} \times 3600 \text{ s/hr}}
 \end{aligned}$$

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$$= \frac{351,648 \text{ ft}^3}{24 \text{ hr/day} \times 3600 \text{ s/hr}}$$

$$= 4.07 \text{ cfs}$$

$$\text{MGD} = 4.07 \text{ cfs} \times 0.646 \text{ (conversion factor)}$$

$$= 2.63 \text{ MGD (design capacity of the facility)}$$

Given the area of the application field, it was determined that a rainfall event of 0.36" would equal approximately the volume of wastewater capable to being treated, or design capacity, of the facility. Therefore, **any rainfall event of at least 0.36", per episode of rainfall, shall be considered inclement weather.** During inclement weather (a rainfall event of at least 0.36"), the City of Tallulah will suspend the discharge to the application field when practical. A rain gage is required to measure the amount of rainfall. Rainfall measurement for episodes of inclement weather exceeding 0.36" must be included in the comment section of the IDMR.

Prior to an inclement weather event, the field will already be partially saturated from pretreated wastewater.

Once the rain has stopped, time for runoff to reach the receiving stream (lag time) was calculated using the following equation:

$$T = \text{distance} / \text{flowrate}$$

$$T = 2,400 \text{ ft} / 0.25 \text{ ft/sec}$$

$$T = 9,600 \text{ sec} / 60 \text{ s/min}$$

$$T = 160 \text{ minutes}$$

$$T = 3 \text{ hours}$$

Discharge to the application field should not resume until 3 hours following an episode of inclement weather. **However, if the facility must discharge to the application field during periods of inclement weather, the permittee will be required to meet the discharge limitations for Outfall 002.** Parameters to be analyzed are outlined in the following table.

**Interim Effluent Limitations**

Interim limits shall become effective on the effective date of the permit and expire three years from the effective date of the permit.

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During the Interim period, reporting the Hexachlorocyclohexane (gamma-BHC; lindane) will be required. All other parameters listed in the Final Effluent Limitations below will be required during the interim period.

Effluent Characteristic	Monthly Avg. (µg/l)	Daily Maximum (µg/l)	Basis
Hexachlorocyclohexane (gamma-BHC; lindane)	Report	Report	A priority pollutant scan indicated a need for a Water Quality Based Limit. Therefore, for monitoring and data information gathering purposes, "report" is proposed during this interim period.

## Final Effluent Limitations

Final limits shall become effective three years from the effective date of the permit and expire on the expiration date of the permit.

Effluent Characteristic	Monthly Avg. (lbs./day)	Monthly Avg.	Weekly Avg.	Basis
CBOD <sub>5</sub>	---	10 mg/l	15 mg/l	Limits are set in accordance with the <i>Texas River TMDLs for Dissolved Oxygen and Nutrients</i> .
TSS	---	15 mg/l	23 mg/l	Since there is no numeric water quality criterion for TSS, and in accordance with the current Water Quality Management Plan, the TSS effluent limitations shall be based on a case-by-case evaluation of the treatment technology being utilized at a facility. Therefore, a Technology Based Limit has been established through Best Professional Judgement for the type of treatment technology utilized at this facility.
NH <sub>3</sub> -N	---	2 mg/l	4 mg/l	Limits are set in accordance with the <i>Texas River TMDLs for Dissolved Oxygen and Nutrients</i> .
DO	---	6 mg/l	---	Limits are set in accordance with the <i>Texas River TMDLs for Dissolved Oxygen and Nutrients</i> .

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**Priority Pollutants**

<b>Effluent Characteristic</b>	<b>Monthly Avg. (µg/l)</b>	<b>Daily Maximum (µg/l)</b>	<b>Basis</b>
Hexachlorocyclohexane (gamma-BHC; lindane)	0.15	0.35	Water Quality Based Limit. See Appendix A-1 for further details.

During the Draft Permit public comment period, the permittee may conduct and submit the results of three (3) or more additional effluent analyses to either refute or substantiate the presence of the Hexachlorocyclohexane (gamma-BHC; lindane). The additional analyses will be evaluated by this Office to determine if the pollutant is potentially in the effluent and if it potentially exceed the State's water quality standards.

**Other Effluent Limitations:****1) Fecal Coliform**

The discharge from this facility is into a water body which has a designated use of Primary Contact Recreation. According to LAC 33:IX.1113.C.5.a, the fecal coliform standards for this water body are 200/100 ml and 400/100 ml. Therefore, the limits of 200/100 ml (Monthly Average) and 400/100 ml (Weekly Average) are proposed as Fecal Coliform limits in the permit. These limits are being proposed through Best Professional Judgement in order to ensure that the water body standards are not exceeded, and due to the fact that existing facilities have demonstrated an ability to comply with these limitations using present available technology.

**2) pH**

According to LAC 33:IX.3705.A.1., POTW's must treat to at least secondary levels. Therefore, in accordance with LAC 33:IX.5905.C., the pH shall not be less than 6.0 standard units nor greater than 9.0 standard units at any time.

**3) Solids and Foam**

There shall be no discharge of floating solids or visible foam in other than trace amounts in accordance with LAC 33:IX.1113.B.7.

**4) Total Residual Chlorine**

If chlorination is used to achieve the limitations for Fecal Coliform Bacteria, the effluent shall contain NO MEASURABLE Total Residual Chlorine (TRC) after disinfection and prior to disposal. Given the current constraints pertaining to chlorine analytical methods, No MEASURABLE will be defined as less than 0.1 mg/l of chlorine. Limits set through BPJ in accordance with the previous LPDES permit and the Water Quality Screen (see Appendix A-1).

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PREVIOUS PERMITS:

LPDES Permit No. LA0086576: Effective: February 1, 2005  
 Expire2: January 31, 2010

<u>Effluent Characteristic</u>	<u>Discharge Limitations</u>		<u>Monitoring Requirements</u>	
	<u>Monthly Avg.</u>	<u>Weekly Avg.</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
<u>Outfall 001</u>				
Flow	Report	Report	Continuous	Recorder
CBOD <sub>5</sub>	219 lb/day / 10 mg/l	15 mg/l	2/week	6 Hour Composite
TSS	329 lb/day / 15 mg/l	23 mg/l	2/week	6 Hour Composite
NH <sub>3</sub> -N	44 lb/day / 2 mg/l	3 mg/l	2/week	6 Hour Composite
DO	6 mg/l minimum	---	2/week	Grab
TRC	less than 0.1 mg/l at any one time		2/week	Grab
Fecal Coliform				
Colonies/100 ml	200	400	2/week	Grab
pH	Range (6.0 su - 9.0 su)		2/week	Grab
Biomonitoring				
<i>Pimephales promelas</i>	Report	Report	1/quarter	24 Hour Comp.
<i>Ceriodaphnia dubia</i>	Report	Report	1/quarter	24 Hour Comp.
<u>Outfall 002</u>				
Flow	Report	Report	Continuous	Recorder
CBOD <sub>5</sub>	10 mg/l	15 mg/l	1/discharge	Grab
TSS	15 mg/l	23 mg/l	1/discharge	Grab
NH <sub>3</sub> -N	2 mg/l	3 mg/l	1/discharge	Grab
DO	6 mg/l minimum	---	1/discharge	Grab
TRC	less than 0.1 mg/l at any one time		1/discharge	Grab
Fecal Coliform				
Colonies/100 ml	200	400	1/discharge	Grab
pH	Range (6.0 su - 9.0 su)		1/discharge	Grab
<u>Outfall 003</u>				
Flow	Report	Report	Continuous	Recorder
Total Organic Carbon	---	50 mg/l	1/quarter	Grab
Oil & Grease	---	15 mg/l	1/quarter	Grab
pH	Range (6.0 su - 9.0 su)		1/quarter	Grab

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**XI. ENFORCEMENT AND SURVEILLANCE ACTIONS:****A) Inspections**

A review of the files indicates the following most recent inspections performed for this facility.

Date – September 5, 2008

Inspector – J. Moore and S. Archibald

EDMS<sup>1</sup> Document # 38303899

Date – October 9, 2007

Inspector – R. Gray

EDMS Document # 36347728

Date – September 25, 2007

Inspector – M. Carter

EDMS Document # 36320215

**B) Compliance and/or Administrative Orders**

A review of the files indicates the following most recent enforcement actions administered against this facility:

**LDEQ Issuance:**

Consolidated Compliance Order & Notice of Potential Penalty (CCONPP)

Enforcement Tracking No. WE-CN-07-0588

Date Issued – February 27, 2008

EDMS Document # 36626738

Warning Letter

Enforcement Tracking No. WE-L-07-0588

Date Issued – December 12, 2007

EDMS Document # 36508405

**C) DMR Review**

See attached ICIS-NPDES report for list of effluent violations from September 2007 through July 2009. Below is a summary of the report:

<u>Parameter</u>	<u>Number of Effluent Violations</u>
<u>Outfall 001</u>	
CBOD <sub>5</sub>	5
TSS	8

<sup>1</sup> EDMS stands for Electronic Document Management System; the LDEQ's electronic repository of official records that have been created or received by LDEQ. Employees and members of the public can search and retrieve documents stored in the EDMS via this web application. (See <http://edms.deq.louisiana.gov>).

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NH <sub>3</sub> -N	2
DO	0
TRC	1
Fecal Coliform	0
pH	0

Outfall 002

CBOD <sub>5</sub>	0
TSS	7
NH <sub>3</sub> -N	8
DO	0
TRC	1
Fecal Coliform	3
pH	0

Outfall 003

No effluent violations reported; however, there were two DMRs that were submitted late.

## XII. ADDITIONAL INFORMATION:

### Reopener Clause

The Louisiana Department of Environmental Quality (LDEQ) reserves the right to impose more stringent discharge limitations and/or additional restrictions in the future to maintain the water quality integrity and the designated uses of the receiving water bodies based upon additional water quality studies and/or TMDL's. The LDEQ also reserves the right to modify or revoke and reissue this permit based upon any changes to established TMDL's for this discharge, or to accommodate for pollutant trading provisions in approved TMDL watersheds as requested by the permittee and/or as necessary to achieve compliance with water quality standards. Therefore, prior to upgrading or expanding this facility, the permittee should contact the Department to determine the status of the work being done to establish future effluent limitations and additional permit conditions.

In accordance with LAC 33:IX.2903., this permit may be modified, or alternatively, revoked and reissued, to comply with any applicable effluent standard or limitations issued or approved under sections 301(b)(2)(c) and (D); 304(b)(2); and 307(a)(2) of the Clean Water Act, if the effluent standard or limitations so issued or approved:

- a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or
- b) Controls any pollutant not limited in the permit; or
- c) Requires reassessment due to change in 303(d) status of waterbody; or
- d) Incorporates the results of any total maximum daily load allocation, which may be approved for the receiving water body.

### Mass Loadings Calculation

Final effluent loadings (i.e. lbs/day) have been established based upon the permit limit concentrations and the design capacity of 2.63 MGD.

Effluent loadings are calculated using the following example:

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CBOD<sub>5</sub>: 8.34 gal/lb x 2.63 MGD x 10 mg/l = 219 lbs/day

Monitoring Requirements

At present, the Monitoring Requirements, Sample Types, and Frequency of Sampling for Outfall 001 are standard for facilities of flows between 1 MGD and 5 MGD.

Effluent CharacteristicsMonitoring RequirementsOutfall 001

	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow	Continuous	Recorder
CBOD <sub>5</sub>	2/week	6 Hr. Composite
TSS	2/week	6 Hr. Composite
NH <sub>3</sub> -N	2/week	6 Hr. Composite
DO	2/week	Grab
TRC	2/week	Grab
pH	2/week	Grab
Hexachlorocyclohexane	1/quarter	24 Hr Composite
Fecal Coliform Bacteria	2/week	Grab
Biomonitoring		
<u>Ceriodaphnia dubia</u> (Method 1002.0)	1/quarter	24 Hr. Composite
<u>Pimephales promelas</u> (Method 1000.0)	1/quarter	24 Hr. Composite

The Monitoring Requirements, Sample Types, and Frequency of Sampling for Outfall 002 are as follows:

Outfall 002

Flow	Continuous	Recorder
CBOD <sub>5</sub>	1/discharge	Grab
TSS	1/discharge	Grab
NH <sub>3</sub> -N	1/discharge	Grab
DO	1/discharge	Grab
TRC	1/discharge	Grab
pH	1/discharge	Grab
Hexachlorocyclohexane	1/quarter	Grab
Fecal Coliform Bacteria	1/discharge	Grab

Construction Compliance Schedule

The permittee shall efficiently operate and maintain the existing treatment facility so as to discharge effluent which does not exceed the INTERIM EFFLUENT LIMITATIONS and MONITORING REQUIREMENTS.

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The permittee shall achieve compliance with the FINAL EFFLUENT LIMITATIONS and MONITORING REQUIREMENTS specified in accordance with the following schedule:

ACTIVITY	DATE
Achieve Interim Effluent Limitations and Monitoring Requirements	On the effective date of the permit
Achieve Final Effluent Limitations and Monitoring Requirements	Three years from the effective date of the permit

The above listed activities must be achieved on or before the deadline date. Additionally, the permittee shall submit a progress report outlining the status of all facility improvements on a yearly basis until compliance is achieved.

Within 14 days of completion of the new facility or facility upgrade and/or expansion, the Permittee shall notify the Department of Environmental Quality-Office of Environmental Services in writing that construction has been completed.

The Permittee shall achieve sustained compliance with Final Effluent Limitations.

Where the percent project completion reported is less than would be required to assure completion of necessary upgrades by the required date, the report of progress shall also include an explanation for this delay and proposed remedial actions.

No later than 14 days following a date for a specific action (as opposed to a report of progress), the permittee shall submit a written notice of compliance or noncompliance.

**Removal of Management Requirements Plan and the Capacity, Management, Operation, and Maintenance (CMOM) Program from the LPDES permit**

The previous LPDES permit contained specific sections within the permit containing requirements to develop and implement a Management Requirements Plan and a CMOM Program. The removal of the specific implementation of these requirements is proposed for the renewal permit. Many of the items listed in these requirements are addressed in other requirements throughout the permit, i.e., they are redundant.

**Pretreatment Requirements**

Based upon consultation with LDEQ pretreatment personnel, general pretreatment language will be used due to the lack of either an approved or required pretreatment program.

**Municipal Wastewater Pollution Prevention Requirements**

The permittee shall institute or continue programs directed towards pollution prevention. The permittee shall institute or continue programs to improve the operating efficiency and extend the useful life of the facility. The permittee will complete an annual Environmental Audit Report each year for the life of this permit according to the schedule below. The permittee will accomplish this requirement

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by completing an Environmental Audit Form which has been attached to the permit. All other requirements of the Municipal Wastewater Pollution Prevention Program are contained in Part II of the permit.

The audit evaluation period is as follows:

Audit Period Begins	Audit Period Ends	Audit Report Completion Date
Effective Date of Permit	12 Months from Audit Period Beginning Date	3 Months from Audit Period Ending Date

**Stormwater Discharges**

Because the design flow of the facility is equal to or greater than 1.0 MGD and in accordance with LAC 33:IX.2511.B.14.i, the facility may contain storm water discharges associated with industrial activity. Therefore, in accordance with LAC 33:IX.2511.A.1.b, specific requirements addressing stormwater discharges will be included in the discharge permit.

**XIII TENTATIVE DETERMINATION:**

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to reissue a permit for the discharge described in this Statement of Basis.

**XIV REFERENCES:**

Louisiana Water Quality Management Plan / Continuing Planning Process, Vol. 8, "Wasteload Allocations / Total Maximum Daily Loads and Effluent Limitations Policy," Louisiana Department of Environmental Quality, January 26, 2009.

Louisiana Water Quality Management Plan / Continuing Planning Process, Vol. 5, "Water Quality Inventory Section 305(b) Report," Louisiana Department of Environmental Quality, 2006.

Louisiana Water Quality Management Plan / Continuing Planning Process, Vol. 3, "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards," Louisiana Department of Environmental Quality, October 7, 2009.

Louisiana Administrative Code, Title 33 - Environmental Quality, Part IX - Water Quality Regulations, Chapter 11 - "Louisiana Surface Water Quality Standards," Louisiana Department of Environmental Quality, 2009.

Louisiana Administrative Code, Title 33 - Environmental Quality, Part IX - Water Quality Regulations, Subpart 2 - "The LPDES Program," Louisiana Department of Environmental Quality, 2009.

Low-Flow Characteristics of Louisiana Streams, Water Resources Technical Report No. 70, United States Department of the Interior, Geological Survey, 2003.

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Low-Flow on Streams in Louisiana, Fred N. Lee for the Louisiana Department of Environmental Quality, Office of Water Resources, Engineering Section, March 2000.

Process Design Manual for Land Treatment of Municipal Wastewater, U.S. Environmental Protection Agency, Office of Water Program Operations; U.S. Army Corps of Engineers; and U.S. Department of Agriculture, October 1977.

Index to Surface Water Data in Louisiana, Water Resources Basic Records Report No. 17, United States Department of the Interior, Geological Survey, 1989.

LPDES Permit Application to Discharge Wastewater, City of Tallulah, Wastewater Treatment Plant, received July 20, 2009, EDMS Document # 42323009.

LPDES Permit Application to Discharge Wastewater Additional Information, City of Tallulah, Wastewater Treatment Plant, received September 22, 2009, EDMS Document # 43444370.

# **STREAM FLOW CHARACTERISTICS REPORT**

## MEMORANDUM

FROM: Todd Franklin

DATE: August 4, 2009

RE: Stream Flow and Water Quality Characteristics for Panola Bayou, receiving waters for the City of Tallulah Wastewater Treatment Plant  
(Permit No. LA0086576, AI: 24837)

Determination of the water quality characteristics for the receiving stream of Outfall 001 were taken from random site number 2397 (Panola Bayou at the bridge on US. Highway 80, 1.1 mile west of Tallulah). The following TSS and hardness results were obtained from three separate samples:

Average hardness = 184 mg/l  
15<sup>th</sup> percentile TSS = 41.8 mg/l

The discharge flows directly into Panola Bayou. A previous determination from Max Forbes to Angela Walker, dated October 12, 1995, established a 7Q10 of 0 cfs for Panola Bayou. This was calculated based on the drainage area and was confirmed through observation. The Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan, Volume 3 (April 16, 2008) states when the 7Q10 and harmonic mean flows (HMF) are less than 0.1 cfs and 1.0 cfs, respectively, default numbers are given. Therefore, for the purposes of permit development a 7Q10 of 0.1 cfs and a HMF of 1.0 cfs should be utilized.

If you have additional questions or comments, please contact me at 2-3102.

# **APPENDIX A-1**

## **Water Quality Screen**

wqsmodn.wk4 Date: 10/08 Appendix A-1  
 Developer: Bruce Fielding Time: 07:57 AM  
 Software: Lotus 4.0 LA0086576: AI 24837  
 Revision date: 08/07/08

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## Water Quality Screen for City of Tallulah Wastewater Treatment Plant

## Input variables:

Receiving Water Characteristics:	Dilution:	Toxicity Dilution Series:
	ZID Fs = 0.1	Biomonitoring dilution: 0.9760153
Receiving Water Name= Panola Bayou		Dilution Series Factor: 0.75
Critical flow (Qr) cfs= 0.1	MZ Fs = 1	
Harm. mean/avg tidal cfs= 1	Critical Qr (MGD)= 0.06463	Percent Effluent
Drinking Water=1 HHNPCR=2	Harm. Mean (MGD)= 0.6463	Dilution No. 1 97.602%
MW=1, BW=2, 0=n	ZID Dilution = 0.9975486	Dilution No. 2 73.201%
Rec. Water Hardness=	M2 Dilution = 0.9760153	Dilution No. 3 54.9009%
Rec. Water TSS=	HHnc Dilution= 0.9760153	Dilution No. 4 41.1756%
Fisch/Specific=1, Stream=0	HHc Dilution= 0.8027348	Dilution No. 5 30.8817%
Diffuser Ratio=	ZID Upstream = 0.0024574	
	M2 Upstream = 0.0245741	Partition Coefficients: Dissolved-->Total
Effluent Characteristics:	M2hhnc Upstream= 0.0245741	
Permittee= City of Tallulah Wastewater Treatment Plant		METALS FW
Permit Number= LA0086576; AI 24837		Total Arsenic 1.8938018
Facility flow (Qef).MGD= 2.63	M2hhc Upstream= 0.2457414	Total Cadmium 3.965241
	ZID Hardness= ---	Chromium III 4.9476558
Outfall Number = 001	M2 Hardness= ---	Chromium VI 1
Eff. data, 2=lbs/day	ZID TSS= ---	Total Copper 2.8924889
WQL, 2=lbs/day	M2 TSS= ---	Total Lead 5.4377009
Effluent Hardness= N/A	Multipliers:	Total Mercury 3.1008643
Effluent TSS= N/A	WLAa --> LTAA 0.32	Total Nickel 2.3188521
WQBL ind. 0=y, 1=n	WLAC --> LTAC 0.53	Total Zinc 3.4940779
Acute/Chr. ratio 0=n, 1=y	LTA a,c-->WQBL avg 1.31	
Aquatic, acute only 1=y, 0=n	LTA a,c-->WQBL max 3.11	Aquatic Life, Dissolved
	LTA h --> WQBL max 2.38	Metal Criteria, ug/L
Page Numbering/Labeling	WQBL-limit/report 2.13	METALS ACUTE CHRONIC
Appendix Appendix A-1	WLA Fraction 1	Arsenic 339.8 150
Page Numbers 1=y, 0=n 1	WQBL Fraction 1	Cadmium 7.0673855 0.3693189
Input Page # 1=y, 0=n 1		Chromium III 176.31043 57.19328
	Conversions:	Chromium VI 15.712 10.582
Fischer/Site Specific inputs:	ug/L-->lbs/day Qef 0.0219342	Copper 4.9908329 3.7573255
Pipe=1, Canal=2, Specific=1	ug/L-->lbs/day Qeo 0	Lead 13.882173 0.5409683
Pipe width, feet	ug/L-->lbs/day Qr 0.000834	Mercury 1.734 0.012
ZID plume dist., feet	lbs/day-->ug/L Qeo 45.590904	Nickel 438.06484 48.650614
M2 plume dist., feet	lbs/day-->ug/L Qef 45.590904	Zinc 35.357406 32.286674
HHnc plume dist., feet	diss-->tot 1=y0=n 1	
HHc plume dist., feet	Cu diss-->tot 1=y0=n 1	Site Specific Multiplier Values:
	cfs-->MGD 0.6463	CV = ---
Fischer/site specific dilutions:		N = ---
Dilution = ---	Receiving Stream:	WLAa --> LTAA ---
F/specific M2 Dilution = ---	Default Hardness= 25	WLAC --> LTAC ---
F/specific HHnc Dilution= ---	Default TSS= 10	LTA a,c-->WQBL avg ---
F/specific HHc Dilution= ---	99 Crit., 1=y, 0=n 1	LTA a,c-->WQBL max ---
		LTA h --> WQBL max ---

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City of Tallulah Wastewater Treatment Plant  
LA0086576; A1 24837

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic	Cu Effluent		Effluent	MOL Effluent		95th %	Numerical Criteria		HH	
Parameters	Instream	/Tech	/Tech	1=No 95%	estimate	Acute	Chronic	HHNDW	Carcinogen	Indicator
	Conc.	(Avg)	(Max)	0=95 %	Non-Tech	FW	FW			
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	*C*
NONCONVENTIONAL										
Total Phenols (4AAP)		9.1403		5	0.19468839	700	350	50		
3-Chlorophenol				10						
4-Chlorophenol				10		383	192			
2,3-Dichlorophenol				10						
2,5-Dichlorophenol				10						
2,6-Dichlorophenol				10						
3,4-Dichlorophenol				10						
2,4-Dichlorophenoc-										
acetic acid (2,4-D)				---						
2-(2,4,5-Trichlorophen-										
oxy) propionic acid										
(2,4,5-TP, Silvex)				---						
METALS AND CYANIDE										
Total Arsenic				10		643.51386	284.07027			
Total Cadmium				1		26.023886	1.4644384			
Chromium III				10		872.32131	282.97266			
Chromium VI				10		15.712	10.582			
Total Copper				10		14.435929	10.868022			
Total Lead				5		75.487104	2.9416241			
Total Mercury				0.2		5.3768987	0.0372104			
Total Nickel				40		1015.8076	112.81358			
Total Zinc				20		123.54153	112.81215			
Total Cyanide				20		45.9	5.4	12844		
DIOXIN										
2,3,7,8 TCDD; dioxin				1.0E-05				7.2E-07		C
VOLATILE COMPOUNDS										
Benzene				10		2249	1125	12.5		C
Bromoform				10		2930	1465	34.7		C
Bromodichloromethane				10				3.3		C
Carbon Tetrachloride				10		2730	1365	1.2		C
Chloroform				10		2890	1445	70		C
Dibromochloromethane				10				5.08		C
1,2-Dichloroethane				10		11800	5900	6.8		C
1,1-Dichloroethylene				10		1160	580	0.58		C
1,3-Dichloropropylene				10		606	303	162.79		
Ethylbenzene				10		3200	1600	8100		
Methyl Chloride				50		55000	27500			
Methylene Chloride				20		19300	9650	87		C
1,1,2,2-Tetrachloro-										
ethane				10		932	466	1.8		C

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## City of Tallulah Wastewater Treatment Plant

LA0086576: AI 24837

(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
Parameters	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A,C,HH	Avg	Max	Avg	Max	WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	001	001	001	001	
								ug/L	ug/L	lbs/day	lbs/day	
NONCONVENTIONAL												
Total Phenols (4AAP)	701.72019	358.60095	51.228707	224.55046	190.05855	51.228707	51.228707	51.228707	51.228707	1.1236607	2.6743125	no
3-Chlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
4-Chlorophenol	383.94119	196.71824	---	122.86118	104.26066	---	104.26066	136.58147	324.25067	2.9958053	7.112179	no
2,3-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,5-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,6-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
3,4-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,4-Dichlorophenoc-												
acetic acid (2,4-D)	---	---	---	---	---	---	---	---	---	---	---	no
2-(2,4,5-Trichlorophen-												
oxy) propionic acid												
(2,4,5-TP, Silvex)	---	---	---	---	---	---	---	---	---	---	---	no
METALS AND CYANIDE												
Total Arsenic	645.09524	291.05106	---	206.43048	154.25706	---	154.25706	202.07675	479.73946	4.4323918	10.522701	no
Total Cadmium	28.092753	1.5004257	---	8.9896809	0.7952256	---	0.7952256	1.0417456	2.4731517	0.0228499	0.0542466	no
Chromium III	874.46697	289.92647	---	279.82943	153.66103	---	153.66103	201.29595	477.88581	4.4152657	10.482043	no
Chromium VI	15.750611	10.842044	---	5.0401955	5.7462831	---	5.0401955	6.6026561	15.675008	0.144874	0.3438188	no
Total Copper	14.471404	11.135095	---	4.6308492	5.9016001	---	4.6308492	6.0664125	14.401941	0.1330619	0.3158951	no
Total Lead	75.672607	3.013912	---	24.215234	1.5973733	---	1.5973733	2.0925591	4.9678311	0.0458986	0.1089654	no
Total Mercury	5.3901119	0.0381248	---	1.7248358	0.0202061	---	0.0202061	0.02647	0.0628411	0.0005806	0.0013784	no
Total Nickel	1018.3038	115.58587	---	325.85722	61.260513	---	61.260513	80.251273	190.5202	1.7602475	4.1789081	no
Total Zinc	123.84512	115.58441	---	39.63044	61.25974	---	39.63044	51.915876	123.25067	1.1387332	2.7034048	no
Total Cyanide	46.012795	5.5327004	13159.63	14.724095	2.9323312	13159.63	2.9323312	3.8413539	9.11955	0.084257	0.20003	no
DIOXIN												
2,3,7,8 TCDD; dioxin	---	---	8.969E-07	---	---	8.969E-07	8.969E-07	8.969E-07	2.135E-06	1.967E-08	4.682E-08	no
VOLATILE COMPOUNDS												
Benzene	2254.5267	1152.6459	15.571768	721.44855	610.90233	15.571768	15.571768	15.571768	37.060808	0.3415543	0.8128992	no
Bromoform	2937.2002	1501.0011	43.227228	939.90407	795.53059	43.227228	43.227228	43.227228	102.8808	0.9481547	2.2566081	no
Bromodichloromethane	---	---	4.1109468	---	---	4.1109468	4.1109468	4.1109468	9.7840533	0.0901703	0.2146054	no
Carbon Tetrachloride	2736.7087	1398.5437	1.4948897	875.7468	741.22816	1.4948897	1.4948897	1.4948897	3.5578376	0.0327892	0.0780383	no
Chloroform	2897.1019	1480.5096	87.201901	927.07262	784.67011	87.201901	87.201901	87.201901	207.54052	1.9127039	4.5522354	no
Dibromochloromethane	---	---	6.3283665	---	---	6.3283665	6.3283665	6.3283665	15.061512	0.1388077	0.3303622	no
1,2-Dichloroethane	11828.997	6044.9875	8.4710418	3785.2792	3203.8433	8.4710418	8.4710418	8.4710418	20.16108	0.1858055	0.4422172	no
1,1-Dichloroethylene	1162.8506	594.253	0.72253	372.11219	314.95409	0.72253	0.72253	0.72253	1.7196215	0.0158481	0.0377185	no
1,3-Dichloropropylene	607.48919	310.44597	166.79042	194.39654	164.53636	166.79042	164.53636	215.54263	511.70809	4.7277552	11.223907	no
Ethylbenzene	3207.8637	1639.3186	8299.0506	1026.5164	868.83887	8299.0506	868.83887	1138.1785	2702.0889	24.965044	59.268158	no
Methyl Chloride	55135.158	28175.789	---	17643.25	14933.168	---	14933.168	19562.45	46442.153	429.0867	1018.6715	no
Methylene Chloride	19347.428	9887.1405	108.37951	6191.177	5240.1845	108.37951	108.37951	108.37951	257.94322	2.3772178	5.6577783	no
1,1,2,2-Tetrachloro-												
ethane	934.29031	477.45155	2.2423346	298.9729	253.04932	2.2423346	2.2423346	2.2423346	5.3367563	0.0491838	0.1170575	no

## Appendix A-1

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## City of Tallulah Wastewater Treatment Plant

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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Toxic	Effluent			Effluent		95th % estimate Non-Tech ug/L	Numerical Criteria			HH Carcinogen Indicator "C"
Parameters	Instream	/Tech Conc. ug/L	/Tech (Avg) ug/L	/Tech (Max) ug/L	1-No 95% 0-95 % ug/L		Acute FW ug/L	Chronic FW ug/L	HHNDW ug/L	

## VOLATILE COMPOUNDS (cont'd)

Tetrachloroethylene				10			1290	645	2.5	C
Toluene				10			1270	635	46200	
1,1,1-Trichloroethane				10			5280	2640		
1,1,2-Trichloroethane				10			1800	900	6.9	C
Trichloroethylene				10			3900	1950	21	C
Vinyl Chloride				10					35.8	C

## ACID COMPOUNDS

2-Chlorophenol				10			258	129	126.4	
2,4-Dichlorophenol				10			202	101	232.6	

## BASE NEUTRAL COMPOUNDS

Benzidine				50			250	125	0.00017	C
Hexachlorobenzene				10					0.00025	C
Hexachlorobutadiene				10			5.1	1.02	0.11	C

## PESTICIDES

Aldrin				0.05			3		0.0004	C
Hexachlorocyclohexane (gamma-BHC, Lindane)				0.05			5.3	0.00215	0.0002	C
Chlordane				0.2			2.4	0.0043	0.00019	C
4,4'-DDT				0.1			1.1	0.001	0.00019	C
4,4'-DDE				0.1			52.5	10.5	0.00019	C
4,4'-DDD				0.1			0.03	0.006	0.00027	C
Dieldrin				0.1			0.2374	0.0557	0.00005	C
Endosulfan				0.1			0.22	0.056	0.64	
Endrin				0.1			0.0864	0.0375	0.26	
Heptachlor				0.05			0.52	0.0038	0.00007	C
Toxaphene				5			0.73	0.0002	0.00024	C

## Other Parameters:

Fecal Col. (col/100ml)

Chlorine 300 0 650 19 21

Ammonia

Chlorides 26000

Sulfates 9000

TDS 79000

City of Tallulah Wastewater Treatment Plant  
LA0086576; AI 24837

	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic Parameters	WLAa	WLAc	WLAh	LTAa	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A,C,HH	Avg	Max	Avg	Max	WQBL?
								001	001	001	001	
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	1293.1701	660.85032	3.1143536	413.81442	350.25067	3.1143536	3.1143536	3.1143536	7.4121616	0.0683109	0.1625798	no
Toluene	1273.1209	650.60458	47335.325	407.39869	344.82043	47335.325	344.82043	451.71476	1072.3915	9.9080019	23.52205	no
1,1,1-Trichloroethane	5292.9751	2704.8757	---	1693.752	1433.5841	---	1433.5841	1877.9952	4458.4467	41.192323	97.792461	no
1,1,2-Trichloroethane	1804.4233	922.11673	8.595616	577.41547	488.72187	8.595616	8.595616	8.595616	20.457566	0.188538	0.4487203	no
Trichloroethylene	3909.5839	1997.9196	26.16057	1251.0669	1058.8974	26.16057	26.16057	26.16057	62.262157	0.5738112	1.3656706	no
Vinyl Chloride	---	---	44.597544	---	---	44.597544	44.597544	44.597544	106.14215	0.9782114	2.3281432	no
ACID COMPOUNDS												
2-Chlorophenol	258.63401	132.17006	129.50617	82.762884	70.050134	129.50617	70.050134	91.765676	217.85592	2.0128067	4.7784953	no
2,4-Dichlorophenol	202.4964	103.48199	238.31595	64.798847	54.845454	238.31595	54.845454	71.847545	170.56936	1.5759184	3.7413025	no
BASE NEUTRAL COMPOUNDS												
Benzidine	250.61435	128.07177	0.0002118	80.196593	67.878037	0.0002118	0.0002118	0.0002118	0.000504	4.645E-06	1.106E-05	no
Hexachlorobenzene	---	---	0.0003114	---	---	0.0003114	0.0003114	0.0003114	0.0007412	6.831E-06	1.626E-05	no
Hexachlorobutadiene	5.1125328	1.0450656	0.1370316	1.6360105	0.5538848	0.1370316	0.1370316	0.1370316	0.3261351	0.0030057	0.0071535	no
PESTICIDES												
Aldrin	3.0073722	---	0.0004983	0.9623591	---	0.0004983	0.0004983	0.0004983	0.0011859	1.093E-05	2.601E-05	no
Hexachlorocyclohexane (gamma-BHC, lindane)	5.3130243	0.2151606	0.2491483	7.7001678	0.1140351	0.2491483	0.1140351	0.149386	0.3546492	0.0032767	0.0077789	yes
Chlordane	2.4058978	0.0044057	0.0002367	0.7698873	0.002335	0.0002367	0.0002367	0.0002367	0.0005633	5.192E-06	1.236E-05	no
4,4'-DDT	1.1027032	0.0010246	0.0002367	0.352865	0.000543	0.0002367	0.0002367	0.0002367	0.0005633	5.192E-06	1.236E-05	no
4,4'-DDE	52.625014	10.758029	0.0002367	16.841285	5.7017551	0.0002367	0.0002367	0.0002367	0.0005633	5.192E-06	1.236E-05	no
4,4'-DDD	0.0300737	0.0061474	0.0003364	0.0096236	0.0032581	0.0003364	0.0003364	0.0003364	0.0008005	7.378E-06	1.756E-05	no
Dieldrin	0.2379834	0.0570688	6.229E-05	0.0761547	0.0302465	6.229E-05	6.229E-05	6.229E-05	0.0001482	1.366E-06	3.252E-06	no
Endosulfan	0.2205406	0.0573762	0.6557275	0.070573	0.0304094	0.6557275	0.0304094	0.0398363	0.0945731	0.0008738	0.0020744	no
Endrin	0.0866123	0.0384215	0.2663893	0.0277159	0.0203634	0.2663893	0.0203634	0.0266761	0.0633302	0.0005851	0.0013891	no
Heptachlor	0.5212779	0.0038934	8.72E-05	0.1668089	0.0020635	8.72E-05	8.72E-05	8.72E-05	0.0002075	1.913E-06	4.552E-06	no
Toxaphene	0.7317939	0.0002049	0.000299	0.2341741	0.0001086	0.000299	0.0001086	0.0001423	0.0003378	3.121E-06	7.409E-06	no
Other Parameters:												
Fecal Col. (col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	15.046681	11.270316	---	0.0949411	5.9732673	---	5.9732673	7.8249801	18.576861	0.1716347	0.4074686	yes
Ammonia	---	---	---	---	---	---	---	---	---	---	---	no
Chlorides	---	---	32389.278	---	---	32389.278	32389.278	32389.278	77086.481	710.43289	1690.8303	no
Sulfates	---	---	11211.673	---	---	11211.673	11211.673	11211.673	26683.782	245.91908	585.28741	no
TDS	---	---	98413.574	---	---	98413.574	98413.574	98413.574	234224.31	2158.623	5137.5228	no
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

# **APPENDIX A-2**

**Documentation and Explanation of  
Water Quality Screen**

## APPENDIX A-2, LA0086576, AI No. 24837

Documentation and Explanation of Water Quality Screen  
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (\*1) or (\*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

## Receiving Water Characteristics:

Receiving Water: Panola Bayou; thence into Roundaway Bayou; thence into Mothiglam Bayou; thence into Alligator Bayou

Critical Flow, Qrc (cfs): 0.1

Harmonic Mean Flow, Qrh (cfs): 1

Segment No.: 081201

Receiving Stream Hardness (mg/L): 184

Receiving Stream TSS (mg/L): 41.8

MZ Stream Factor, Fs: 1

Plume distance, Pf: N/A

## Effluent Characteristics:

Company: City of Tallulah

Facility flow, Qe (MGD): 2.63

Effluent Hardness: N/A

Effluent TSS: N/A

Pipe/canal width, Pw: N/A

Permit Number: LA0086576

## Variable Definition:

Qrc, critical flow of receiving stream, cfs

Qrh, harmonic mean flow of the receiving stream, cfs

Pf = Allowable plume distance in feet, specified in LAC 33:IX.1115.D

Pw = Pipe width or canal width in feet

Qe, total facility flow, MGD

Fs, stream factor from LAC IX.33.11 (1 for harmonic mean flow)

Cu, ambient concentration, ug/L

Cr, numerical criteria from LAC IX.1113, Table 1

WLA, wasteload allocation

LTA, long term average calculations

WQBL, effluent water quality based limit

ZID, Zone of Initial Dilution in % effluent

MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 \times F_s + Q_e)}$$

$$\text{WLA a.c.h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(F_s \times Q_{rc} \times 0.6463 \times C_u)}{Q_e}$$

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Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

$$\text{Critical Dilution} = \frac{(2.8) P_w \pi^{1/2}}{P_f}$$

$$WLA = \frac{(Cr-Cu) P_f}{(2.8) P_w \pi^{1/2}}$$

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.38)(P_w^{1/2})}{(P_f)^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2}}{2.38 P_w^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rh} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rh} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

$$\text{Critical Dilution} = \frac{(2.8) P_w \pi^{1/2}}{P_f}$$

$$WLA = \frac{(Cr-Cu) P_f^*}{(2.8) P_w \pi^{1/2}}$$

Discharge from a canal:

$$\text{Critical Dilution} = \frac{(2.38)(P_w^{1/2})}{(P_f)^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2*}}{2.38 P_w^{1/2}}$$

\*  $P_f$  is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

If a site specific dilution is used, WLA are calculated by subtracting  $C_u$  from  $C_r$  and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr-Cu)}{\text{site specific dilution}}$$

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## Longterm Average Calculations:

$$LTAa = WLAa \times 0.32$$

$$LTAc = WLAc \times 0.53$$

$$LTAh = WLAh$$

## WQBL Calculations:

Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:

$$\text{Daily Maximum} = \text{Min}(LTAa, LTAc) \times 3.11$$

$$\text{Monthly Average} = \text{Min}(LTAa, LTAc) \times 1.31$$

If human health LTA is more limiting:

$$\text{Daily Maximum} = LTAh \times 2.38$$

$$\text{Monthly Average} = LTAh$$

## Mass Balance Formulas:

$$\text{mass (lbs/day)} = (\text{ug/L}) \times 1/1000 \times (\text{flow, MGD}) \times 8.34 = \text{lbs/day}$$

$$\text{concentration(ug/L)} = \frac{\text{lbs/day}}{(\text{flow, MGD}) \times 8.34 \times 1/1000} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

- (\*1)) Parameter being screened.
- (\*2)) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
- (\*3)) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (\*4)) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (\*5)) Minimum analytical Quantification Levels (MQL's). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present on-site and/or in the waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.
- (\*6)) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.
- (\*7)) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (\*18) - (\*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.
- (\*8)) LAC 33:IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific

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situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(1.1280[\ln(\text{hardness})] - 1.6774)}$
Chromium III	$e^{(0.8190[\ln(\text{hardness})] + 3.6880)}$
Copper	$e^{(0.9422[\ln(\text{hardness})] - 1.3884)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 1.4600)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 3.3612)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Arsenic	$1 + 0.48 \times \text{TSS}^{-0.73} \times \text{TSS}$
Cadmium	$1 + 4.00 \times \text{TSS}^{-1.13} \times \text{TSS}$
Chromium III	$1 + 3.36 \times \text{TSS}^{-0.93} \times \text{TSS}$
Copper	$1 + 1.04 \times \text{TSS}^{-0.74} \times \text{TSS}$
Lead	$1 + 2.80 \times \text{TSS}^{-0.80} \times \text{TSS}$
Mercury	$1 + 2.90 \times \text{TSS}^{-1.14} \times \text{TSS}$
Nickel	$1 + 0.49 \times \text{TSS}^{-0.57} \times \text{TSS}$
Zinc	$1 + 1.25 \times \text{TSS}^{-0.70} \times \text{TSS}$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Copper	$1 + (10^{4.86} \times \text{TSS}^{-0.72} \times \text{TSS}) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times \text{TSS}^{-0.85} \times \text{TSS}) \times 10^{-6}$
Zinc	$1 + (10^{5.36} \times \text{TSS}^{-0.52} \times \text{TSS}) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

- (\*9)) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness dependent criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(0.7852[\ln(\text{hardness})] - 3.4900)}$
Chromium III	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$
Copper	$e^{(0.8545[\ln(\text{hardness})] - 1.3860)}$
Lead	$e^{(1.2730[\ln(\text{hardness})] - 4.7050)}$
Nickel	$e^{(0.8460[\ln(\text{hardness})] + 1.1645)}$
Zinc	$e^{(0.8473[\ln(\text{hardness})] + 0.7614)}$

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Dissolved to total metal multiplier formulas are the same as (\*8), acute numerical criteria for aquatic life protection.

- (\*10)) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primary contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.
- (\*11)) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.
- (\*12)) Wasteload Allocation for acute aquatic criteria (WLAa). Dilution type WLAa is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L. Dilution WLAa formulas for streams:

$$WLAa = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAa formulas for static water bodies:

$$WLAa = (Cr-Cu)/Dilution\ Factor$$

Cr represents aquatic acute numerical criteria from column (\*8).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (\*13)) Wasteload Allocation for chronic aquatic criteria (WLAc). Dilution type WLAc is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L. Dilution WLAc formula:

$$WLAc = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAc formulas for static water bodies:

$$WLAc = (Cr-Cu)/Dilution\ Factor$$

Cr represents aquatic chronic numerical criteria from column (\*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (\*14)) Wasteload Allocation for human health criteria (WLAh). Dilution type WLAh is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution WLAh formula:

$$WLAh = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times Qrh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAh formulas for static water bodies:

$$WLAh = (Cr-Cu)/Dilution\ Factor$$

Cr represents human health numerical criteria from column (\*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (\*15)) Long Term Average for aquatic numerical criteria (LTAA). WLAa numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32.  $WLAa \times 0.32 = LTAA$ .  
If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

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- (\*16)) Long Term Average for chronic numerical criteria (LTAc). WLAc numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53.  $WLAc \times 0.53 = LTAc$ .  
If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.
- (\*17)) Long Term Average for human health numerical criteria (LTAh). WLAh numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1.  $WLAc \times 1 = LTAh$ .  
If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.
- (\*18)) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation. If standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then the type of limit, Aquatic or Human Health (HH), is indicated.
- (\*19)) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ( $LTA_{\text{limiting aquatic}} \times 1.31 = WQBL_{\text{monthly average}}$ ). If human health criteria was the most limiting criteria then  $LTAh = WQBL_{\text{monthly average}}$ . If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.
- (\*20)) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ( $LTA_{\text{limiting aquatic}} \times 3.11 = WQBL_{\text{daily max}}$ ). If human health criteria was the most limiting criteria then LTAh is multiplied by 2.38 to determine the daily maximum WQBL ( $LTA_{\text{limiting aquatic}} \times 2.38 = WQBL_{\text{daily max}}$ ). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.
- (\*21)) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above.  $\text{Monthly average WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{monthly average WQBL, lbs/day}$ .
- (\*22)) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above.  $\text{Daily maximum WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{daily maximum WQBL, lbs/day}$ .
- (\*23)) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

# **ICIS-NPDES REPORT**

## TALLULAH, CITY OF-LA0086576

MP End Date	Outfall	STORET Loc	Mon Loc	DMR Field	Parameter	Limit	DMR Value	Units	Vio Code	Rec'd
9/30/07	001-A	80082	1	C2	BOD, carbonaceous, 05 day, 20 C — MO AVG	10	12	mg/L	E90	10/18/07
9/30/07	001-A	80082	1	C3	BOD, carbonaceous, 05 day, 20 C — WKLY AVG	15	38	mg/L	E90	10/18/07
11/30/07	001-A	00530	1	C3	Solids, total suspended — WKLY AVG	23	46.7	mg/L	E90	12/18/07
11/30/07	001-A	80082	1	C2	BOD, carbonaceous, 05 day, 20 C — MO AVG	10	11	mg/L	E90	12/18/07
11/30/07	001-A	80082	1	C3	BOD, carbonaceous, 05 day, 20 C — WKLY AVG	15	31.4	mg/L	E90	12/18/07
2/29/08	002-A	00530	1	C2	Solids, total suspended — MO AVG	15	16	mg/L	E90	3/26/08
3/31/08	001-A	80082	1	C2	BOD, carbonaceous, 05 day, 20 C — MO AVG	10	15	mg/L	E90	4/24/08
3/31/08	002-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG	3	3.5	mg/L	E90	4/24/08
4/30/08	001-A	00530	1	C2	Solids, total suspended — MO AVG	15	19	mg/L	E90	5/19/08
4/30/08	001-A	00530	1	C3	Solids, total suspended — WKLY AVG	23	31	mg/L	E90	5/19/08
4/30/08	001-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG	3	3.26	mg/L	E90	5/19/08
4/30/08	002-A	00530	1	C2	Solids, total suspended — MO AVG	15	23	mg/L	E90	5/19/08
4/30/08	002-A	00530	1	C3	Solids, total suspended — WKLY AVG	23	28	mg/L	E90	5/19/08
11/30/08	002-A	00610	1	C2	Nitrogen, ammonia total (as N) — MO AVG	2	2.64	mg/L	E90	12/22/08
11/30/08	002-A	74055	1	C2	Coliform, fecal general — MOAV GEO	200	465	#/100mL	E90	12/22/08
11/30/08	002-A	74055	1	C3	Coliform, fecal general — WKAV GEO	400	465	#/100mL	E90	12/22/08
12/31/08	002-A	50060	1	C3	Chlorine, total residual — DAILY MX	099	11	mg/L	E90	1/23/09
12/31/08	002-A	74055	1	C3	Coliform, fecal general — WKAV GEO	400	430	#/100mL	E90	1/23/09
1/31/09	001-A	50060	1	C3	Chlorine, total residual — DAILY MX	099	102	mg/L	E90	2/17/09
2/28/09	002-A	00610	1	C2	Nitrogen, ammonia total (as N) — MO AVG	2	3.82	mg/L	E90	3/23/09
2/28/09	002-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG	3	3.82	mg/L	E90	3/23/09
3/31/09	001-A	00530	1	C3	Solids, total suspended — WKLY AVG	23	30	mg/L	E90	4/27/09
3/31/09	003-Q	00400	1	C1	pH — INST-MIN	6	NODI=C	SU	D90	8/18/09
3/31/09	003-Q	00400	1	C3	pH — INST MAX	9	NODI=C	SU	D90	8/18/09
3/31/09	003-Q	00556	1	C2	Oil & grease — WKLY AVG	15	NODI=C	mg/L	D90	8/18/09
3/31/09	003-Q	00680	1	C2	Carbon, tot organic (TOC) — WKLY AVG	50	NODI=C	mg/L	D90	8/18/09
4/30/09	001-A	00530	1	C2	Solids, total suspended — MO AVG	15	=17	mg/L	E90	5/21/09
4/30/09	001-A	00530	1	C3	Solids, total suspended — WKLY AVG	23	=24	mg/L	E90	5/21/09
4/30/09	002-A	00530	1	C2	Solids, total suspended — MO AVG	15	19	mg/L	E90	5/21/09

MP End Date	Outfall	STORET	Mon Loc	DMR Field	Parameter	Limit	DMR Value	Units	Vio Code	Rec'd
4/30/09	002-A	00530	1	C3	Solids, total suspended — WKLY AVG		23	27	mg/L	E90 5/21/09
5/31/09	002-A	00530	1	C2	Solids, total suspended — MO AVG		15	=19	mg/L	E90 6/18/09
5/31/09	002-A	00530	1	C3	Solids, total suspended — WKLY AVG		23	=40	mg/L	E90 6/18/09
6/30/09	001-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG		3	=3.6	mg/L	E90 7/20/09
6/30/09	002-A	00610	1	C2	Nitrogen, ammonia total (as N) — MO AVG		2	=5.94	mg/L	E90 7/24/09
6/30/09	002-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG		3	=5.94	mg/L	E90 7/24/09
6/30/09	003-Q	00400	1	C1	pH — INST MIN		6	NODI=C	SU	D90 8/18/09
6/30/09	003-Q	00400	1	C3	pH — INST MAX		9	NODI=C	SU	D90 8/18/09
6/30/09	003-Q	00556	1	C2	Oil & grease — WKLY AVG		15	NODI=C	mg/L	D90 8/18/09
6/30/09	003-Q	00680	1	C2	Carbon, tot organic (TOC) — WKLY AVG		50	NODI=C	mg/L	D90 8/18/09
7/31/09	001-A	00530	1	C2	Solids, total suspended — MO AVG		15	=30	mg/L	E90 8/18/09
7/31/09	001-A	00530	1	C3	Solids, total suspended — WKLY AVG		23	=30	mg/L	E90 8/18/09
7/31/09	002-A	00610	1	C2	Nitrogen, ammonia total (as N) — MO AVG		2	=5	mg/L	E90 8/18/09
7/31/09	002-A	00610	1	C3	Nitrogen, ammonia total (as N) — WKLY AVG		3	=6	mg/L	E90 8/18/09

# **BIOMONITORING REQUIREMENTS**

## FRESHWATER CHRONIC

# BIOMONITORING FREQUENCY RECOMMENDATION AND RATIONALE FOR ADDITIONAL REQUIREMENTS

Permit Number: **LA0086576**  
 Facility Name: **City of Tallulah WWTP**  
 Previous Critical Biomonitoring Dilution: **100%**  
 Proposed Critical Dilution Biomonitoring: **98% (WET limit)**  
 Date of Review: **8/11/09**  
 Name of Reviewer: **Laura Thompson**

## Recommended Frequency by Species:

*Pimephales promelas* (Fathead minnow): **Once / Quarter<sup>1</sup>**  
*Ceriodaphnia dubia* (water flea): **Once / Quarter<sup>1</sup>**

Recommended Dilution Series: **31%, 41%, 55%, 73%, and 98%**

## Number of Tests Performed during previous 5 years by Species:

*Pimephales promelas* (Fathead minnow): **19**  
*Daphnia pulex* (water flea): **N/A – Testing of species was not required**  
*Ceriodaphnia dubia* (water flea): **21**

## Number of Failed Tests during previous 5 years by Species:

*Pimephales promelas* (Fathead minnow): **4 sub-lethal**  
*Daphnia pulex* (water flea): **N/A – Testing of species was not required**  
*Ceriodaphnia dubia* (water flea): **3 lethal, 5 sub-lethal**

## Failed Test Dates during previous 5 years by Species:

*Pimephales promelas* (Fathead minnow): **Testing periods of: 7/1/05-9/30/05; 11/1/05-11/30/05; 7/1/07-9/30/07; 10/1/08-12/31/08**  
*Daphnia pulex* (water flea): **N/A – Testing of species was not required**  
*Ceriodaphnia dubia* (water flea): **Testing periods of: 7/1/07-9/30/07 (lethal & sub-lethal); 1/1/08-3/31/08 (sub-lethal); 4/1/08-6/30/08 (lethal & sub-lethal); 7/1/08-9/30/08 (lethal & sub-lethal); 10/1/08-12/31/08 (sub-lethal)**

Previous TRE Activities: **N/A – No previous TRE Activities**

<sup>1</sup> This facility will have a three year compliance schedule to meet toxicity testing requirements implemented into the permit renewal. The biomonitoring frequency shall be quarterly for the life of the permit.

## FRESHWATER CHRONIC

## Additional Requirements (including WET Limits) Rationale / Comments Concerning Permitting:

The City of Tallulah WWTP owns and operates an existing publicly owned treatment works serving the City of Tallulah in Tallulah, Madison Parish, Louisiana. LPDES Permit LA0086576, effective February 1, 2005, contained freshwater chronic biomonitoring as an effluent characteristic of Outfall 001 for *Ceriodaphnia dubia* and *Pimephales promelas*. The effluent series consisted of 32%, 42%, 56%, 75%, and 100% concentrations, with the critical dilution being defined as the 100% effluent concentration. The testing was to be performed quarterly. Data on file indicate that the permittee has experienced 3 lethal and 5 sub-lethal failures to the *Ceriodaphnia dubia*, and 4 sub-lethal failures to the *Pimephales promelas* during the last five years.

This facility has experienced several lethal and sub-lethal biomonitoring test failures during the previous permit cycle. A reasonable potential analysis also shows that reasonable potential for future lethal and/or sub-lethal toxicity exists for the City of Tallulah WWTP. LDEQ does not recommend a Whole Effluent Toxicity (WET) Limit be implemented immediately upon permit reissuance. Rather, LDEQ recommends that a three year compliance schedule be incorporated into LA0086576. The purpose of this compliance schedule is to attain compliance with the WET limit. After this three year period expires, the WET limit stated in Part I of LA0086576 shall become effective.

It is recommended that freshwater chronic biomonitoring be an effluent characteristic of Outfall 001 (2.63 mgd of treated sanitary wastewater) in LA0086576. The effluent dilution series shall be 31%, 41%, 55%, 73%, and 98% concentrations, with 98% being defined as the critical biomonitoring dilution and/or WET limit. The biomonitoring frequency shall be once per quarter for *Ceriodaphnia dubia* and *Pimephales promelas* for the term of the permit.

This recommendation is in accordance with the LDEQ/OES Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, Water Quality Management Plan Volume 3. Version 6 (April 16, 2008), and the Best Professional Judgment (BPJ) of the reviewer.



## Reasonable Potential Analysis for WET

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Facility Name City of Tallulah WWTP  
 Type of Testing Chronic Freshwater  
 LPDES Permit Number LA0086576 Outfall number 1  
 Proposed Critical Dilution 98 \* Critical Dilution in draft permit, do not use % sign.

## Test Data

Enter data in yellow shaded cells only. Fifty percent should be entered as 50.

Date (dd/mm/yy)	Vertebrate				Invertebrate			
	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU

Min NOEC Observed

100

31

31

31

TU at Min Observed

1.00

3.23

3.23

3.23

Count

20

20

Count

18

18

Mean

1.000

1.214

Mean

1.265

1.467

Std. Dev.

0.000

0.570

Std. Dev.

0.699

0.898

CV

0

0.5

CV

0.6

0.6

RPMF

1.1

1.3

1.4

1.4

Vertebrate Lethal

1.000

Reasonable Potential Acceptance Criteria.

1.078

Reasonable Potential exists, Permit requires WET monitoring and WET limi

Vertebrate Sublethal

4.110

Reasonable Potential exists, Permit requires WET monitoring and WET limi

Invertebrate Lethal

4.426

Reasonable Potential exists, Permit requires WET monitoring and WET limi

Invertebrate Sublethal

4.426

Reasonable Potential exists, Permit requires WET monitoring and WET limi

## NOTES:

Where toxicity was so great in a test that all effluent dilutions failed and the NOEC was reported as zero percent effluent dilution ("0"), the Reasonable Potential calculation was performed substituting the next lower whole number of the lowest concentration of effluent tested ("31"). This results in the introduction of some bias in the permittee's favor.

# **PRETREATMENT REQUIREMENTS**

## PRETREATMENT EVALUATION AND RECOMMENDATION

**FACILITY NAME:** *City of Tallulah WWTP*

**CITY:** *Tallulah*

**PARISH:** *Madison*

**PERMIT #:** *LA0086576*

**DESIGN FLOW:** *2.63 MGD*

**ESTIMATED OR EXPECTED TREATED WASTEWATER FLOW:** *1 MGD*

**OTHER POTWs IN SYSTEM:** *N/A*

**INDUSTRIES LISTED IN MANUFACTURERS GUIDE AND/OR LPDES PERMIT APPLICATION:**

Industry Name	Type of Industry	Direct or Indirect Discharger
APH Inc Farm & Auto Supply	Manufactures farm machinery and equipment	N/A <sup>1</sup>
Bunge Oils Inc.	Vegetable oil mill	N/A <sup>1</sup>
Complex Chemicals Co Inc.	Manufactures blended and compounded oils and greases; manufactures antifreeze compounds	N/A <sup>1</sup>
Great Day Inc.	Manufactures extruded aluminum products	Indirect <sup>2</sup>
Holly Mfg Co	Manufactures farm machinery and equipment	N/A <sup>1</sup>
Northrop Grumman Ship Systems	Builds and repairs ships	N/A <sup>3</sup>
Tallulah Publishing Co Inc.	Publishes newspapers without printing	Indirect <sup>4</sup>

<sup>1</sup> This facility is outside the City of Tallulah limits and is not connected to the City of Tallulah WWTP.

<sup>2</sup> The discharge is sanitary wastewater only.

<sup>3</sup> This facility discharges sanitary wastewater into the Madison Parish WWTP (LAG540489). Storm water discharges are regulated by LDEQ Stormwater General Permit LAR05M806.

<sup>4</sup> No printing is done at this site. The discharge is sanitary wastewater only.

Melissa Reboul - 8/13/2009

**STANDARD LANGUAGE RECOMMENDATION AND JUSTIFICATION:**

*Due to the absence of pretreatment categorical standards for the indirect discharges listed above or because the discharge is of sanitary wastewater only, it is recommended that LDEQ Option 1 Pretreatment Language be included in LPDES Permit LA0086576. This language is established for municipalities that do not have either an approved or required Pretreatment program. This recommendation is in accordance with 40 CFR Part 403 regulations, the General Pretreatment Regulations for Existing and New Sources of Pollution contained in LAC Title 33, Part IX, Chapter 61 and the Best Professional Judgement (BPJ) of the reviewer.*